

## Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

### Listing of Claims:

1. (currently amended) A compound with affinity to human P-selectin, which is a derivative of a peptide or a functional equivalent of said peptide represented by  $X(A_x)_m A_3 A_1 A_2 A_1 Y$ , wherein:
- $A_1$  is a D- or L-cysteine (C), or a D- or L-valine (V), or an analogue thereof;
  - $A_2$  is D- or L-aspartic acid (D) or an analogue thereof;
  - $A_3$  is D- or L-phenylalanine (F), or a D- or L-tryptophan (W), or an analogue thereof;
  - $A_x$  is D- or L-amino acid, selected from the group consisting of glutamic acid (E), aspartic acid (D), glycine (G) and cysteine (C);
  - X marks the N-terminal side of said sequence and is hydrogen or a residue comprising 1 to 6 D- or L-amino acids or analogues thereof;
  - Y marks the C-terminal side of said sequence and is -OH or a residue comprising 1 to 11 D- or L-amino acids or analogues thereof;
- wherein X and Y together may form a cyclic system;
- ~~characterised~~ characterized in that at least one of X and Y or X+Y is substituted with the group  $R^1-(Z)_n-$ , wherein: - Z is selected from -CO-, -O-, -NR<sup>2</sup>-, and -CO-NR<sup>2</sup>- and wherein R<sup>1</sup> and R<sup>2</sup> are independently selected from:
- a) H;
  - b) a (C<sub>1</sub>-C<sub>8</sub>)alkyl group;
  - c) a (C<sub>2</sub>-C<sub>8</sub>) alkyl group, wherein at least one C-atom is replaced with a nitrogen[[-]], oxygen[[-]] or sulphur atom;
  - d) a (C<sub>6</sub>-C<sub>14</sub>) aryl group, which may be substituted with at least one group selected from a halogen, (C<sub>1</sub>-C<sub>6</sub>)alkyl, -CF<sub>3</sub>, -OH, -O-(C<sub>1</sub>-C<sub>6</sub>)alkyl, -COOH, -COO-(C<sub>1</sub>-C<sub>6</sub>alkyl), -NO<sub>2</sub>, -NH<sub>2</sub>, -NH-(C<sub>1</sub>-C<sub>6</sub>)alkyl, -N-(C<sub>1</sub>-C<sub>6</sub>)alkyl)<sub>2</sub> and -SO<sub>3</sub>H;
  - e) a heteroaryl group which is selected from 5- or 6-membered ring systems and benzo-condensed ring systems, and has at least one heteroatom selected from the group consisting of nitrogen, oxygen and sulphur, wherein said heteroaryl group may be substituted with at least one group selected from the group consisting of a

halogen, -(C<sub>1</sub>-C<sub>6</sub>)alkyl, -CF<sub>3</sub>, -OH, -O-(C<sub>1</sub>-C<sub>6</sub>)alkyl, -COOH, -COO-(C<sub>1</sub>-C<sub>6</sub>)alkyl, -NO<sub>2</sub>, -NH<sub>2</sub>, -NH-(C<sub>1</sub>-C<sub>6</sub>)alkyl, -N-(C<sub>1</sub>-C<sub>6</sub>)alkyl)<sub>2</sub> and -SO<sub>3</sub>H;

- f) an aralkyl group comprising an alkyl group as defined in b) or c) and an aryl group or heteroaryl group as defined in d) or e);

and wherein m and n are integers independently selected from 0 and 1, with the proviso that n is not 0 when R<sup>1</sup> is H.

2. (original) The compound according to claim 1, wherein A<sub>x</sub> represents D- or L-glutamic acid (E) or D- or L- aspartic acid.
3. (currently amended) The compound according to claim 1 ~~or 2~~, wherein A<sub>1</sub> represents D- or L-valine (V).
4. (currently amended) The compound according to ~~any one of the preceding claims~~ claim 1, wherein A<sub>3</sub> is D- or L- tryptophan (W).
5. (currently amended) The compound according to ~~any one of the preceding claims~~ claim 1, wherein Y is a residue comprising D- or L- lysine
6. (currently amended) The compound according to ~~any one of the preceding claims~~ claim 1, wherein R<sup>1</sup> is unsubstituted phenyl or phenyl substituted with at least one substituent as defined in claim 1.
7. (currently amended) The compound according to ~~any one of the preceding claims~~ claim 1, wherein n is 0 and R<sup>1</sup> is 3,4,5-trihydroxyphenylcarbonyl or 3,5-dicarboxyphenylcarbonyl.
8. (currently amended) The compound according to ~~any one of the preceding claims~~ claim 1, wherein X comprises no amino acids and Y comprises D- or L- lysine.
9. (original) The compound as claimed in claim 8, wherein n is 0 and R<sup>1</sup> is 3,4,5-trihydroxyphenylcarbonyl or 3,5-dicarboxyphenylcarbonyl.
10. (original) The compound of claim 1, wherein m is 0, wherein Z is -CO-, and wherein Z is attached to Y via a D- or L- glycine or aminobutyric acid spacer.
11. (currently amended) The compound according to ~~any one of the preceding claims~~ claim 1, comprising a cyclic or constrained backbone structure.

12. (currently amended) A composition comprising one or more derivatives of the peptides or functional equivalents thereof according to ~~any one of the preceding claims~~claim 1.

13. (currently amended) A method for the preparation of a compound according to ~~any one of the preceding claims~~claim 1, comprising a sequence of steps wherein amino acid monomers, amino acid oligomers, or mono- or oligomers of amino acid analogues or mimetics are assembled by chemical or enzymatic ligation, and wherein said steps are performed in a liquid phase and/or at the interface to a ~~functionalised~~functionalized solid phase.

14. (currently amended) The method according to claim 13, comprising reacting the HMPA linker of the formula 8 (Fig.1) by standard Fmoc chemistry to yield a compound of the sequence

$X(A_x)_mA_3A_1A_2A_1Y$ , wherein  $X$ ,  $A_x$ ,  $A_3$ ,  $A_1$ ,  $A_2$ ,  $Y$  and  $m$  are as defined in claim 1,

-  $A_1$  is a D- or L-cysteine (C), or a D- or L-valine (V), or an analogue thereof;

-  $A_2$  is D- or L-aspartic acid (D) or an analogue thereof;

-  $A_3$  is D- or L-phenylalanine (F), or a D- or L-tryptophan (W), or an analogue thereof;

-  $A_x$  is D- or L-amino acid, selected from the group consisting of glutamic acid (E), aspartic acid (D), glycine (G) and cysteine (C);

-  $X$  marks the N-terminal side of said sequence and is hydrogen or a residue comprising 1 to 6 D- or L-amino acids or analogues thereof;

-  $Y$  marks the C-terminal side of said sequence and is -OH or a residue comprising 1 to 11 D- or L-amino acids or analogues thereof;

wherein  $X$  and  $Y$  together may form a cyclic system;

characterized in that at least one of  $X$  and  $Y$  or  $X+Y$  is substituted with the group  $R^1\text{-(Z)}_n$ ,

wherein: -  $Z$  is selected from -CO-, -O-, -NR<sup>2</sup>-, and -CO-NR<sup>2</sup>- and wherein  $R^1$  and  $R^2$  are independently selected from:

a) H;

b) a (C<sub>1</sub>-C<sub>8</sub>)alkyl group;

c) a (C<sub>2</sub>-C<sub>8</sub>) alkyl group, wherein at least one C-atom is replaced with a nitrogen[[ $\cdot$ ]], oxygen[[ $\cdot$ ]] or sulphur atom;

d) a (C<sub>6</sub>-C<sub>14</sub>) aryl group, which may be substituted with at least one group selected from a halogen, (C<sub>1</sub>-C<sub>6</sub>)alkyl, -CF<sub>3</sub>, -OH, -O-(C<sub>1</sub>-C<sub>6</sub>)alkyl, -COOH, -COO-(C<sub>1</sub>-C<sub>6</sub>alkyl), -NO<sub>2</sub>, -NH<sub>2</sub>, -NH-(C<sub>1</sub>-C<sub>6</sub>)alkyl, -N-(C<sub>1</sub>-C<sub>6</sub>)alkyl)<sub>2</sub> and -SO<sub>3</sub>H;

e) a heteroaryl group which is selected from 5- or 6-membered ring systems and benzo-condensed ring systems, and has at least one heteroatom selected from the group consisting of nitrogen, oxygen and sulphur, wherein said heteroaryl group may be substituted with at least one group selected from the group consisting of a halogen, -(C<sub>1</sub>-C<sub>6</sub>)alkyl, -CF<sub>3</sub>, -OH, -O-(C<sub>1</sub>-C<sub>6</sub>)alkyl, -COOH, -COO-(C<sub>1</sub>-C<sub>6</sub>)alkyl, -NO<sub>2</sub>, -NH<sub>2</sub>, -NH-(C<sub>1</sub>-C<sub>6</sub>)alkyl, -N-(C<sub>1</sub>-C<sub>6</sub>)alkyl)<sub>2</sub> and -SO<sub>3</sub>H;

f) an aralkyl group comprising an alkyl group as defined in b) or c) and an aryl group or heteroaryl group as defined in d) or e);

and wherein m and n are integers independently selected from 0 and 1, with the proviso that n is not 0 when R<sup>1</sup> is H;

and wherein the amino groups are initially protected by protecting groups, and R-CO is introduced by replacing the protecting groups by using standard methods.

15-17. (canceled)

18. (currently amended) A Pharmaceutical-pharmaceutical composition, comprising a compound according to ~~any one of claims claim 1 to 11~~ and one or more pharmaceutically acceptable carriers or excipients.

19. (currently amended) The Pharmaceutical-pharmaceutical composition according to claim 18, which is formulated and processed for ~~parenteral administration, preferably for intravascular, intramuscular, subcutaneous or intralesional injection.~~

20. (currently amended) The Pharmaceutical-pharmaceutical composition according to claim 18, which is formulated and processed for ~~oral administration, preferably in the form of a tablet, a capsule, granules, an enteric solid dosage form, a solid dosage form providing sustained or controlled release, or an orally disintegrating dosage form.~~

21. (currently amended) The Pharmaceutical-pharmaceutical composition according to claim 18, which is formulated and processed for ~~transmucosal administration, such as nasal, buccal, sublingual or vaginal administration.~~

22. (currently amended) ~~The Pharmaceutical-pharmaceutical~~ composition according to claim 18, which is formulated and processed for pulmonary administration through a metered dose inhaler, a nebulizer, an aerosol spray dispenser, or a dry powder inhaler.

23. (currently amended) ~~The Pharmaceutical-pharmaceutical~~ composition according to ~~any one of claims claim 18 to 22~~, further comprising a drug targeting agent and/or a bioavailability enhancing agent.

24. (currently amended) A method for determining whether a molecule comprises a binding affinity for P-selectin comprising contacting P-selectin or a functional equivalent thereof with said molecule and with a compound according to ~~any one of claims 1-11~~ claim 1 and determining whether binding of said compound to said P-selectin or functional analogue thereof, is reduced.

25-27. (canceled)

28. (new) A method of inhibiting leukocyte binding to platelets and/or endothelial cells in a mammal comprising administering to the mammal an effective amount of a composition according to claim 18.

29. (new) A method of treating, preventing, or diagnosing chronic inflammatory disorders, rheumatoid arthritis, inflammatory bowel disease, multiple sclerosis, atherosclerosis, restenosis, ischemia, renal failure, tumour metastasis, bacterial sepsis, disseminated intravascular coagulation, adult respiratory stress syndrome, stroke, angiogenesis, transplant rejection, thrombosis, or circulatory shock in a mammal comprising administering an effective amount of a composition according to claim 18.